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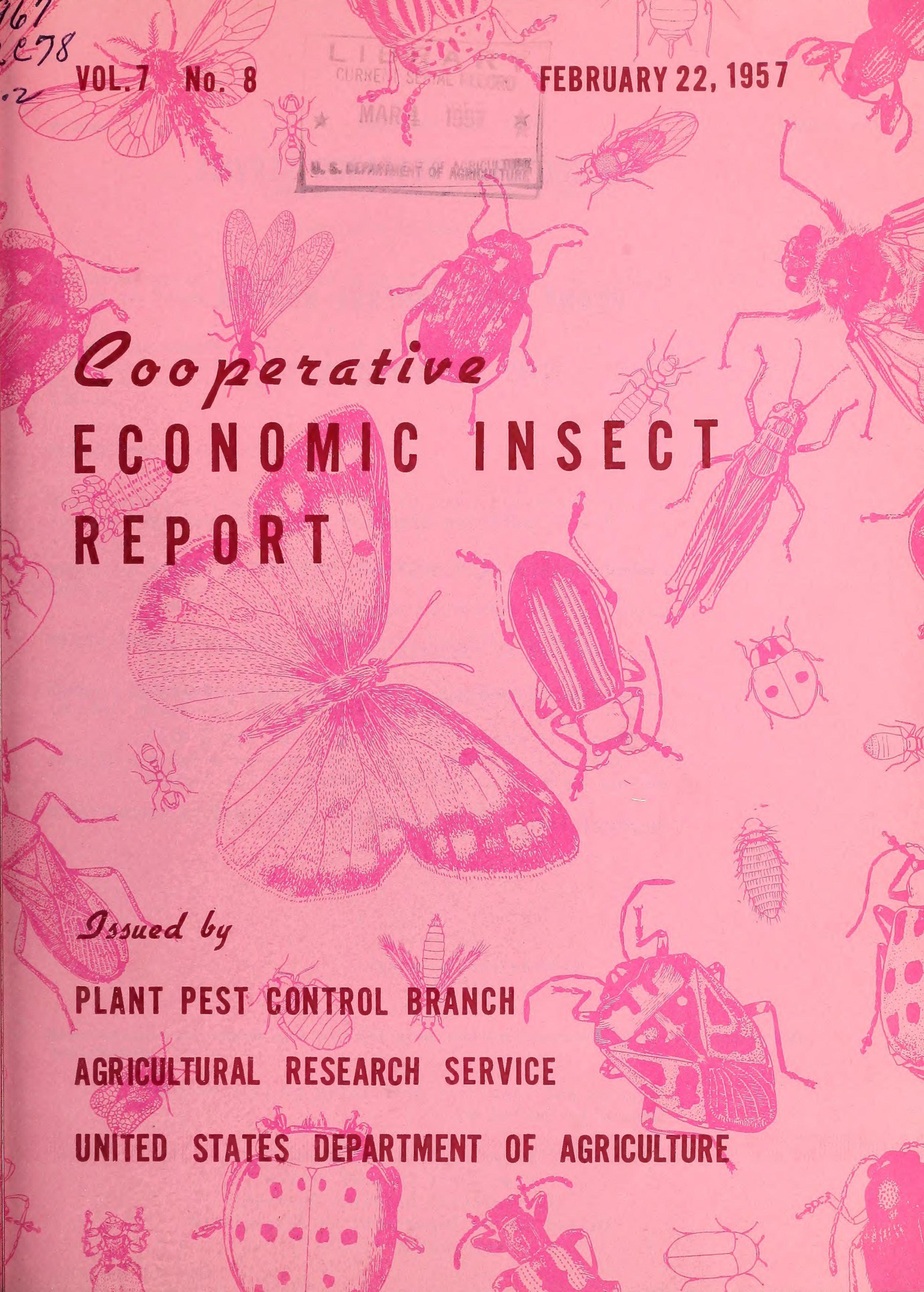
VOL. 7 No. 8 FEBRUARY 22, 1957



Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 7 February 22, 1957 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

ARMYWORM larvae collected in oats at Baton Rouge, Louisiana. (p.133). Moths active in Texas, Louisiana and South Carolina. (p.138).

POTATO LEAFHOPPER taken at Fort Valley, Georgia. First report of this species this year. (p.133). Your participation with research committee on studying migration of this insect is urged. Details of the project are discussed on pages 139-40.

CHINCH BUG outlook for 1957. (p.134).

Trap catches of MEXICAN FRUIT FLY in lower Rio Grande Valley of Texas indicate heaviest population in several years. (p.135).

VEGETABLE WEEVIL and TOBACCO FLEA BEETLE heavy in tobacco plant beds in some Georgia counties. (p.136).

KHAPRA BEETLE eradication and survey reports. (p.137).

SUMMARY OF INSECT CONDITIONS - 1956 - Arkansas (p.141), Maine Forest Insects (p.144), Alaska (p.145), Kansas (p.145).

INSECTS not known to occur in the United States. (p.149).

Distribution of RANGE GRASSHOPPERS. (p.150).

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Reports in this issue are for the week ending February 15 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-February to Mid-March 1957

The Weather Bureau's 30-day outlook for the period mid-February to mid-March calls for temperatures to average below seasonal normals over the eastern third of the nation, but above normal over the western half. In the remaining portion near normal averages are predicted. Greater than normal precipitation, with considerable snow, is expected in the North and Middle Atlantic States. Subnormal amounts are predicted west of the Continental Divide, as well as in the Northern Plains and Upper Mississippi Valley. In other areas about normal precipitation is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook," published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 18, 1957

Warm, moist air flowing northwestward out of the Gulf brought weekend rains to Texas and other adjacent drought stricken States. In extreme southern Texas where falls were heavy, Brownsville recorded a 24-hour total of nearly 5 inches, most of which fell on Saturday afternoon. At inland stations only light to occasionally moderate amounts were received. Except for this section, a few isolated locations, and a small area between the lower Missouri and Arkansas River Valleys eastward into Tennessee where weekly precipitation totals were moderate, the Nation received very little rain. Sections of the extreme Southwest, southern Florida, and central portions of the Northern and Central Plains States received no measureable precipitation during the period. Mild conditions prevailed over most of the Nation until a cooler air mass moved into central portions of the country over the weekend. Average temperatures this week were below normal by 3° or more only along the coast of the South Atlantic States, while throughout the Plains States averages this week were generally 9° or more above the seasonal normals. Maximum temperature readings reached 90° in southeastern Colorado, and many daily records were equalled or exceeded in Arizona on both the 13th and 14th.

Warming continued to melt the snow on the ground at lower elevations and at the close of the week the cover was confined primarily to the northern half of the Canadian Border States. As of Monday, depths ranged from 8 to 41 inches in the northwestern Great Lakes Region and 15 to 20 inches in northern and central Maine. At higher elevations in the Far West, Mount Baker Lodge reports 160 inches; Crater Lake, Oregon, 60 inches; and Soda Springs, California, 42 inches. Reports on ice thickness this week include 28 inches at Bismarck, North Dakota; 16 inches at Huron, South Dakota; 20 inches at La Crosse, Wisconsin, and Alpena, Michigan, and 9 inches at Dubuque, Iowa. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Larvae, first to fourth instars, taken at two to eight per 100 sweeps in six oat fields in East Baton Rouge Parish. (Oliver).

GREENBUGS (Toxoptera graminum)- TEXAS - Almost 100 percent parasitized in experimental wheat plots in Brazos County. (Chada). LOUISIANA - Very light in oat fields in East Baton Rouge Parish. (Oliver).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light infestations on small grain in Hunt, Rockwall, Kaufman and Delta Counties (Hawkins); medium to heavy in Dallas-Fort Worth area (Chada). One heavy infestation on oats and rescuegrass in Robertson County. (Turney).

Small Grain Pest Survey - Western Oklahoma: Total of 51 small grain fields examined in 12 western counties. ARMY CUTWORM found in 15 fields, BROWN WHEAT MITE in 34 and GREENBUG in one field in Greer County. Major County had the highest and most widespread cutworm infestation (up to 6.5 per square yard). Because of retarded growth of wheat in this county cutworms are a definite threat. Brown wheat mite was fairly uniformly scattered over all counties visited. Highest populations were found in shallow cultivated and trashy fields. (Coppock).

A WIREWORM (Melanotus communis) - FLORIDA - Larvae, averaging 2 per plant, on corn at Homestead, Dade County. (Daigle, Swanson; Feb. 6).

SUGARCANE BEETLE (Euetheola rugiceps) - LOUISIANA - Active in southern area. (Oliver).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Feeding on barley in experimental plots in Brazos County. (Chada).

SPOTTED ALFALFA APHID - GEORGIA - Light infestations, 10 per 100 sweeps, on alfalfa in Oconee County. (Johnson). TEXAS - Heavy infestations on seedling alfalfa in Brazos and Burleson Counties (Randolph), light to medium infestations in Delta and Rockwall Counties, light to heavy in Kaufman County (Hawkins), medium to heavy in Lamb County (Kimbrough), medium in Washington, Hays and Zapata Counties (Turney), light in Hidalgo, Willacy and Cameron Counties (Turney, Deer) and heavy in experimental plots in Dimmit County (Richardson, Turney). OKLAHOMA - Continued low populations in all western counties; 375-1000 per square foot of alfalfa crown. (Coppock).

PEA APHID (Macrosiphum pisi) - GEORGIA - Infesting alfalfa at 64 per 100 sweeps in Oconee County. (Johnson). LOUISIANA - Moderate to heavy, 2000-3500 per 100 sweeps, in burclover, vetch and alfalfa in East Baton Rouge Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - LOUISIANA - Continues to increase in legumes in East Baton Rouge Parish, 20-125 per 100 sweeps. (Oliver).

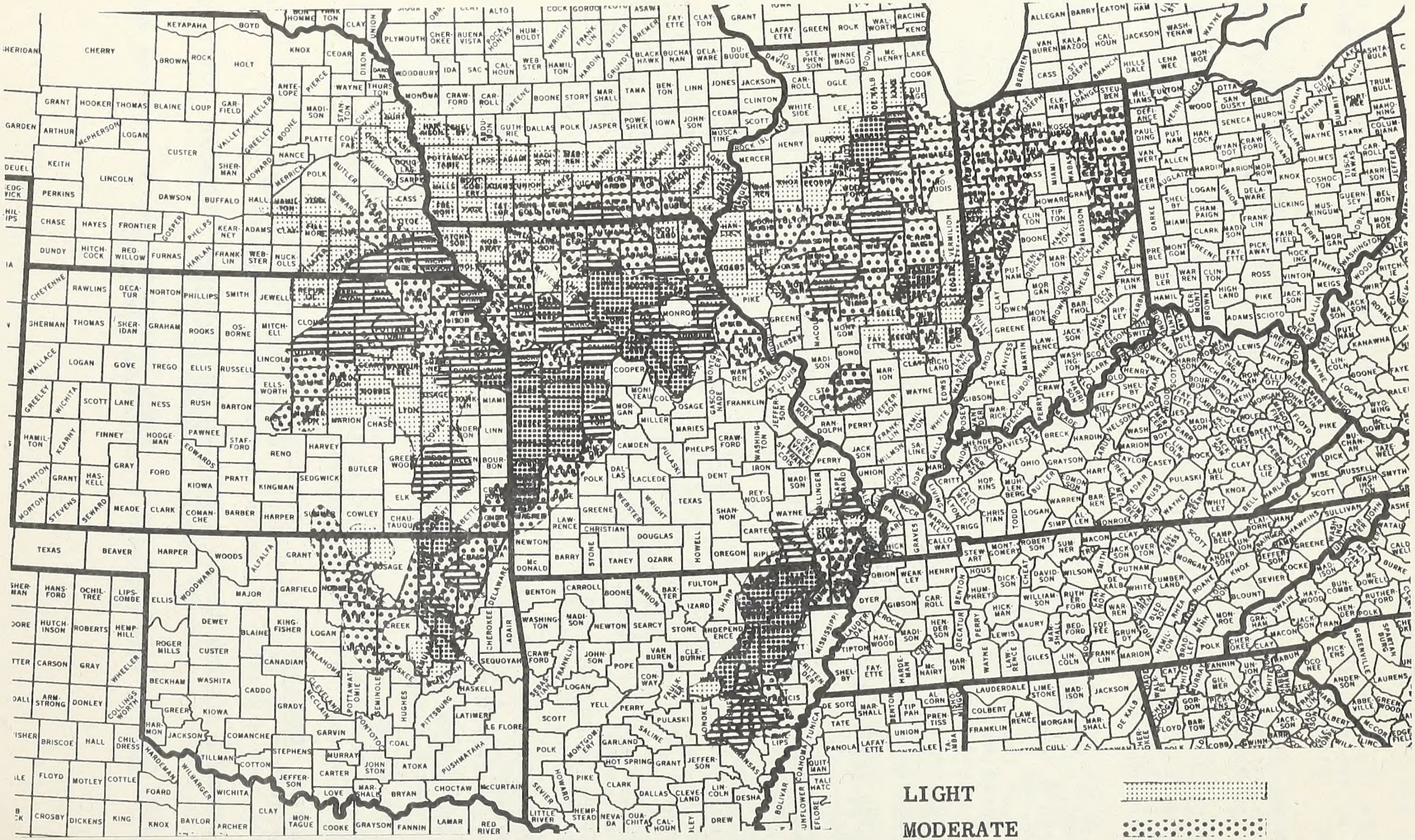
POTATO LEAFHOPPER (Empoasca fabae) - GEORGIA - Several specimens collected on stickyboard traps at U.S. Horticultural Field Laboratory, Ft. Valley, during period of January 14 to 21. (Turner). Determined D.A. Young.

LEAFHOPPERS (Empoasca spp.) - LOUISIANA - Rapidly increasing in burclover, alfalfa and sweetclover in East Baton Rouge Parish; 200-800 per 100 sweeps. It is probable that migration has begun in this area. (Oliver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - GEORGIA - Fifteen per 100 sweeps on alfalfa in Oconee County. (Johnson).

GREEN JUNE BEETLE (Cotinus nitida) - NORTH CAROLINA - Larvae numerous and becoming active in lawns in Polk County. (Culbertson, Farrier).

CHINCH BUG INFESTATION IN FALL OF 1956



LIGHT ▒

MODERATE ⁘

SEVERE ☰

VERY SEVERE ▦

Prepared by Cooperating States and
Plant Pest Control Branch, ARS, USDA,
CEIR 7(8); February 22, 1957

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - TEXAS - Trapping in citrus area during January was negative. (PPC, Southern Reg.). FLORIDA - Total of 45,379 traps in operation in January with 82 adults trapped in 9 known-infested counties which represented 11 new infestations in 5 counties and 8 recurrences in 6 counties. Acreage under treatment at end of January totaled 29,345, a reduction of 8,710 from December. Aggregate of 6,004,874 acres treated to January 31 with an estimated 145,560 acres to be treated. (PPC, Southern Reg.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - MEXICO - Total of 620 traps operated on 249 properties with 2,307 trap inspections during January in Baja Calif. Results negative. (PPC, Mexican Reg.). TEXAS - In lower Rio Grande Valley 826 traps were in operation in January. Total of 68 adults trapped during month for total of 72 for season. Catch indicates much heavier population in groves now than for many past seasons and indicates possibility of heavy larval infestation to follow. (PPC, Southern Reg.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - In western area, 14,884 trees were inspected at Tecate and Tijuana, Baja California and Hermosillo, Sonora during January. One light infestation was found in Hermosillo. In eastern area of Mexico, 33,088 trees were inspected on 1,017 properties with 11 trees lightly infested on 9 properties. From December 26, 1956 through January 7, 1957, seven light infestations were discovered in the city of Montemorelas, Nueva Leon. (PPC, Mexican Reg.). TEXAS - Total of 4,985 trees on 361 properties in Cameron, Hidalgo and Webb Counties were inspected with no infestations found during January. (PPC, So. Reg.).

OLIVE FRUIT FLY (*Dacus oleae*) - MEXICO - Operation of 50 traps on 23 properties continued during January in Baja California. Results of 108 trap inspections were negative. (PPC, Mexican Reg.).

GREEN PEACH APHID (*Myzus persicae*) - WASHINGTON - Average of 6 per 6-inch twig in peach orchards near Union Gap. As many as 40 per twig some trees. None hatched by February 12. (Landis).

APHIDS - PENNSYLVANIA - Eggs in numbers on apples in Lawrence and Indiana Counties. (Adams, Udine).

BURROWING NEMATODE (*Radolpholus similis*) - FLORIDA - Survey inspections made in 14 counties during January. New infestations found in 14 groves, 16 citrus nurseries, 2 ornamental nurseries and 2 other miscellaneous properties. (PPC, Southern Reg.).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Generally moderate to heavy damage to crucifers over the State. (Johnson).

CABBAGEWORMS - LOUISIANA - Cabbage looper, imported cabbageworm, and diamondback moth larvae infesting collards and cabbage in East Baton Rouge Parish. (Oliver).

CABBAGE APHID (*Brevicoryne brassicae*) - GEORGIA - Light to moderate infestations on cabbage in Brooks, Cook, Lowndes and Thomas Counties. (Johnson). TEXAS - Still a problem in lower Rio Grande Valley. (Wene, Deer).

DARKLING BEETLES - TEXAS - Caused sufficient damage to cantaloup in lower Rio Grande Valley to require control. (Wene, Deer).

A FALSE CHINCH BUG (*Nysius* sp.) - TEXAS - Light infestations on spinach in Zavala County. (Richardson, Turney).

BEET LEAFHOPPER (*Circulifer tenellus*) - TEXAS - Infestations range from 2 to 6 per 100 sweeps in spinach in Dimmit and Zavala Counties. (Richardson, Turney).

ONION THRIPS (*Thrips tabaci*) - TEXAS - Light on onions in Dimmit and Zavala Counties. (Richardson, Turney).

SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) - Surveys principally of storages, in 106 counties with 244 infestations found in 40 counties during January. New areas include a reinfestation in Brantley County, GEORGIA and first infestations in Copiah and Perry Counties, MISSISSIPPI. (PPC, Southern Reg.).

STRAWBERRY ROOT APHID (*Aphis forbesi*) - LOUISIANA - Infestation on strawberry foliage severe enough in East Baton Rouge Parish to warrant control measures in some fields. (Oliver).

WHITEFLIES - LOUISIANA - Moderate infestation in strawberry fields in East Baton Rouge Parish. (Oliver).

A NITIDULID (*Lobiopa insularis*) - LOUISIANA - Surveys reveal that this beetle remains around strawberry fields throughout the year. Increased numbers taken in traps recently. (Oliver).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - TEXAS - Troublesome on strawberries, especially during present harvesting season in lower Rio Grande Valley. (Wene, Deer).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - GEORGIA - Heavy infestations on tobacco beds in Thomas, Tift and Berrien Counties; moderate in Colquitt, Ben Hill and Lowndes Counties; and light in Brooks and Cook Counties. (Johnson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Heavy infestations on tobacco beds in Thomas and Tift Counties; moderate in Colquitt, Berrien and Lowndes Counties; and light in Cook and Ben Hill Counties. (Johnson).

SOUTHERN MOLE CRICKET (*Scapteriscus acletus*) - FLORIDA - Adults averaging 1 to 2 runs per 15 linear feet in tobacco beds and dooryard flower beds at Quincy, Gadsden County. (Tappan, Feb. 8).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - TEXAS - Total of 51 lint cleaners inspected in 16 counties during January in which 8,893 larvae found in 14 counties. Dry boll inspections resulted in finding 301 larvae in 10 counties. Inspections of 3,313 bolls in field debris showed 473 larvae in 8 counties. FLORIDA - In counties where wild cotton eradication program is in progress, inspections were made of 14,277 bolls, 847 blooms and 2,682 squares with all inspections negative except for 2 infestations in Monroe County. (PPC Southern Reg. Jan. Rept.). MEXICO - Results of debris inspections in January indicate a very low carry-over of larvae in debris from fields in areas of eastern Mexico. (PPC, Mexican Reg.).

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - One adult taken from peach blossom, Ft. Valley, Georgia, February 7. (Turner). Several reports of weevils out of hibernation in southern area. (Parham).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SPIDER MITES - OREGON - Carnations and chrysanthemums heavily infested by Tetranychus sp. in two greenhouses near Salem. (Capizzi). NORTH CAROLINA - Severe leaf damage in boxwoods by Eurytetranychus buxi in local area of Sampson County. (Jones, Farrier).

SOUTHERN RED MITE (Oligonychus ilicis) - FLORIDA - Heavily infesting camellia at Tallahassee (Porter) and eggs and adults averaging several per leaf on 2 pittosporum at Gainesville (Kerr, Feb. 8).

AN APHID (Myzocallis discolor) - TEXAS - Heavy infestations occurring on live oaks in Brazos County. (Turney).

A LOOPER (Autographa sp.) - OREGON - Infested about 5 percent of two greenhouse plantings of snapdragons in Portland, January 17. (Larson).

INSECTS AFFECTING MAN AND ANIMALS

TROPICAL RAT MITE (Bdellonyssus bursa) - PENNSYLVANIA - Biting adults and children in building at University Park. Rats in wall entering room. (Udine).

A BLUEBOTTLE FLY (Calliphora vicina) - NORTH CAROLINA - Infesting beef cow's horn in Davidson County. (Barnhardt, Dogger).

STORED PRODUCTS INSECTS

Khapra Beetle Eradication Progress Report
The cumulative treatment summary as of January 31, 1957 is as follows:

State	Tot. Inf. Sites	Tot. Vol. Cu. Ft.	Sites Treated & Released	Vol. Treated & Released	Methyl Br. Used in lbs.
Arizona	143	57,938,573	108	35,761,923	312,908
California	283	76,961,500	263	72,825,378	580,558
New Mexico	5	415,400	5	415,400	3,680
R. Mexico	40	11,630,000	40	11,630,000	88,429
Totals	471	146,945,473	416	120,632,701	985,575

(PPC, West. Reg.)

Khapra Beetle Survey, Non-infested States: OKLAHOMA - During January, State-Federal workers examined 145 establishments and 41 collections were made. No khapra beetle found to date. (Coppock). SOUTHERN REGION - Inspections were conducted during January in Arkansas, Alabama, Georgia, Mississippi, and Tennessee with no infestations found. (PPC, Southern Reg.).

Stored Grain Pest Survey - Oregon: Dominant species in 13 premises in Union, Baker and Umatilla Counties during January were GRANARY WEEVIL and SAW-TOOTHED GRAIN BEETLE. (Chinn). SAW-TOOTHED GRAIN BEETLE, FOREIGN GRAIN BEETLE, FLAT GRAIN BEETLE, and GRANARY WEEVIL and a MITE (Blattisocius tineivorus) were major species in 7 premises in Linn and Lane Counties, February 7. (Krantz, O'Brien).

No khapra beetle found in these inspections.

STORED PEANUT INSECTS - GEORGIA - Light to heavy infestations of almond moth (*Ephestia cautella*) and Indian-meal moth (*Plodia interpunctella*) on peanuts throughout peanut area. Indian-meal moth more dominant than almond moth in storage. (Clements).

BENEFICIAL INSECTS

A PREDACEOUS MITE (*Zercoseius macauleyi*) - OREGON - Discovered February in grain sweepings at Brownsville and in stored oats at Lebanon. (Krantz).

LIGHT TRAP COLLECTIONS

	Pseud. uni.	Agrot. yps.	Prod. orn.	Perid. marg.	Felt. subt.	Heliothis zea	Trich. ni
TEXAS							
College Station2/2-15	29	2	20	3	5	1	
Brownsville 1/29-2/15	21		10	5	93	27	8
LOUISIANA							
Franklin 2/1-12	3		21		54	1	1
Baton Rouge 2/2-15	62	19	17	17	109	2	3
SOUTH CAROLINA (Counties)							
Oconee 2/2-8	13	13	29	1	6		
Florence 2/2-8	81	29	37	16	33	1	
Charleston 1/28-2/3	66	56	16		16		

Additional collections: TEXAS - Brownsville, 1/29-2/15;
Loxostege similalis - 22,340; *Protoparce sexta* - 7

MISCELLANEOUS PESTS

CLOVER MITE (*Bryobia praetiosa*) - ARIZONA - Indications spring build-up underway and complaints can be expected from homeowners. (Ariz. Coop. Rept.).

CORRECTIONS

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - FLORIDA 7(7): 114; should read one colony per tree in five plum trees inspected - - - -. (Denmark).

DISTRIBUTION OF RANGE GRASSHOPPERS - *Orphulella compta* Scudder 7(7): 130; no records should be indicated in Pennsylvania.

MIGRATION OF THE POTATO LEAFHOPPER AND ITS CAUSES

North Central States Regional Project NC-29

This project was designed to develop data that would reveal the source, nature, magnitude, and possible causes of leafhopper migrations. Much of the desired data can be obtained only through the cooperative effort of volunteer cooperators in widely scattered locations. It seems apparent the potato leafhopper does not overwinter in the upper Mississippi River Valley. Present information, based on collections from the entire circum-Caribbean area, indicates that the potato leafhopper may overwinter only in restricted portions of the Gulf Coast area of the U. S. and that specimens collected in late winter and early spring in parts of the Gulf Coast states may be migrants from still farther south. Data on the exact time migrants arrive at many points well distributed over the entire area are sorely needed if we are to establish definite migration patterns.

Observations are most critical in February and March in the Gulf Coast states and in April and may in the states farther north as we should know the last date leafhoppers were not present as well as the first date of collection to establish the date of arrival. There may be several migratory flights from the south, and so the collection of reasonable accurate quantitative data is essential. (In 1954 light flights occurred in late April followed by large flights in mid to late May. In 1955 there was a light flight about May 5-7 and a larger, more general flight May 24-26). In 1956 there was an early flight April 28-May 7, and a larger flight about May 12-16. During this period the presence of other species of Empoasca may confuse the picture and the use of Form 1 and the submission of collections for study and identification is urged. (Always put a slip showing collection date, collecting station, and collection number in the vial as well as on Form 1.) Since only males can be properly identified and females may exceed males 10-20 or more to 1, sizable collections are needed to assure accurate identification. Later on when the identity of the species on preferred hosts is reasonably certain, specimens need be submitted only occasionally (in fact our facilities would not permit handling excessive numbers of samples at this time). Then or whenever specimens are not submitted, merely forward observations on Form 1.

The potato leafhopper makes its first appearance in many of the Atlantic seaboard states about the same time it appears in the Midwest. The question is, are they from the same source? Did they follow the same flight pattern in a great arc up the Mississippi River Valley and then east or did they move in an air stream going up the east coast a day or so earlier or later? The reasonable certainty that literally billions of leafhoppers move into the Midwestern and Northeastern states in late April and May makes it a foregone conclusion high populations must have developed and left a considerable acreage of favorable hosts somewhere farther south. The question is, where is E. fabae abundant in April and early May and do populations in these areas show a sudden decline? If so, why? The project is in urgent need of much data on this point. So far the information is confusing. Only light to scant populations are reported in the upland areas of Alabama, Mississippi, and Louisiana in April. Higher populations are reported in the Mississippi and other large river bottoms, but we have few records to indicate a large drop in these populations at the time E. fabae appears in the Midwestern and Eastern states except as we know large acreages of winter legumes are plowed under about this time in parts of Louisiana, Mississippi, and Arkansas, and perhaps elsewhere.

The potato leafhopper, Empoasca fabae, feeds and breeds on many host plants: potato, legumes, and to some extent on succulent parts of woody plants such as elm, hackberry, boxelder, English walnut, chestnut, etc. Fill out a separate report form for each host or plant association (alfalfa field, pasture, grove, tree group, etc.) and each collecting station or location.

In evaluating local migrations, the condition of the host plants in the area (vicinity of freshly cut legume fields, young summer shoots on trees, green foliage in the fall, etc.) may be an important consideration and space is provided to record such under "Remarks" on Form 1. Nymphs are not easy to count in the sweep net, and it may often be necessary to count them on the host plant.

May we hope that in the North Central States, at least, state leaders will find it possible to arrange for weekly or semi-weekly observations or collections based on sweeping possible hosts at several widely scattered points (especially north and south) during the critical period in April and May. Notes through the remainder of the season are solicited but are considered to be less urgent. While light traps may provide some valuable early records, sweeping will undoubtedly give the most reliable quantitative data. When populations are low, 100 or more sweeps for each host or habitat are needed to establish the presence or absence of the species and 500 or more sweeps are often required to get a sample adequate for identification. Later when leafhoppers are abundant 10 sweeps may be adequate.

Additional forms are available upon request.

Project Leaders:
H. H. Ross and G. C. Decker
Illinois Natural History Survey
Urbana, Illinois

NORTH CENTRAL STATES PROJECT ON INSECT MIGRATIONS

Leafhopper Survey

State ____________ County ____________ Date ____________
Location ____________
Sta. No. ____________ Coll. No. ____________
Host ____________ Growth ____________ Acres ____________
No. of sweeps to get collection submitted ____________
Adults/100 sweeps _____ Nymphs present _____ Predominant instar _____
Remarks:

Form 1 Reported by: ____________

Send specimens and information to the Urbana, Illinois address shown above.

SUMMARY OF INSECT CONDITIONS - 1956

ARKANSAS

Reported by Lloyd O. Warren

Highlights: Concurrent infestations of the PEA APHID and SPOTTED ALFALFA APHID on alfalfa caused considerable damage in the northwestern and north central counties during the spring season. SUGARCANE BEETLE activity increased in 1956 over 1955 and the insect threatens to become a major pest. EUROPEAN CORN BORER infestations spread to additional counties and increased in intensity in counties infested prior to 1956. ARMYWORM infestations were much lighter than during the preceding two years. BEET ARMYWORM appeared on soybeans and cotton in the southeastern counties. BOLLWORM infestations were heavier than usual in early summer but did not differ greatly from 1955 during July and August. Emergence of overwintered BOLL WEEVILS were heavier than normal in May and June, but weather conditions depressed buildup of second generation. TREE INSECTS, including a pine sawfly, bark beetles, aphids, and bagworm, caused more damage than in 1955.

Cereal and Forage Insects: SPOTTED ALFALFA APHID was general over the State by late 1955, but apparently did not survive the winter in much of eastern area. Infestations built up locally in high numbers, up to 5,000 per sweep, in the western and north central counties in early spring of 1956. Active infestations did not appear in the extreme northeastern counties until early summer. PEA APHID (Macrosiphum pisi) infestations caused damage to many fields in the northwestern counties. About 50 percent of the acreage in these counties was treated one or more times for aphid control. CLOVER LEAF WEEVIL (Hypera punctata) numbers were higher than usual, ranging up to 20 larvae per square foot of crown. Some feeding damage was evident. Applications for aphid control usually controlled leaf weevil infestations also. THREE-CORNERED ALFALFA HOPPER (Spissistilis festinus) infestations on alfalfa were much lighter than in 1955. Sweep counts seldom averaged more than 3-5 per 10 sweeps versus 10-30 in 1955. BEAN LEAF BEETLE (Cerotoma trifurcata) numbers were lighter on soybeans during 1956 than in 1955. BEET ARMYWORM (Laphygma exigua) larvae appeared on soybeans in southeastern area in late summer, but damage was negligible. GARDEN WEBWORM (Loxostege similalis) caused light damage to soybeans in the northeastern counties. CUTWORMS on alfalfa and other legumes were relatively light in 1956. GREENBUG (Toxoptera gramimum) caused light to moderate damage to winter grains in the northwestern counties. Field infestations were spotty and natural control was sufficient in most instances. GRASSHOPPERS (Melanoplus spp.) caused damage to alfalfa, soybeans, hay, and pasture in local areas over the State. ARMYWORM (Pseudaletia unipuncta) numbers were generally lighter than in 1955 with locally heavy damage in some northeastern counties.

Corn Insects: GRASSHOPPER attack on corn was very localized with damage occurring in the southwestern and northwestern counties. CORN EARWORM (Heliothis zea) infestations were about normal on corn. GARDEN WEBWORM heavily damaged several fields of corn in the east central counties. EUROPEAN CORN BORER (Pyrausta nubilalis) infestations appeared in Jefferson, Conway, Phillips, Lonoke, Prairie and Desha Counties for the first time. The percentage of stalks infested in late August ranged from 2 to 22 in counties from Conway east and north to the Mississippi River. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) infestations were spotty but somewhat greater than in 1955. Larval counts were heaviest in Conway County, ranging up to 72 percent of the stalks infested. Five additional counties, Lonoke, Prairie, Woodruff, Monroe, and Lafayette, were found infested in 1956. FALL ARMYWORM (Laphygma frugiperda) infestations were generally light to moderate with damaging numbers on some late planted corn. SUGARCANE BEETLE (Euetheola rugiceps) adults caused extensive damage to corn and other crops over the State in early spring. Flights were heavy, as many as 35,000 beetles being collected in a light trap during a two-week period at Stuttgart. CHINCH BUG (Blissus leucopterus) infestations caused local damage in the extreme northeastern counties and were generally heavier than in 1955.

Fruit Insects: ORIENTAL FRUIT MOTH (*Grapholitha molesta*) was locally heavy in eastern and southwestern Arkansas while PLUM CURCULIO (*Conotrachelus nenuphar*) infestations were below average in 1956 due to the absence of fruit in 1955. PEACH TREE BORERS (*Sanninoidea exitiosa* and *Synanthedon pictipes*) were somewhat heavier than in 1955. SPIDER MITE infestations appeared on both apples and peaches in several of the production areas. Infestations of the PLUM WEB-SPINNING SAWFLY (*Neurotoma inconspicua*) were found in the State for the first time. SEED-CORN MAGGOT (*Hylemya cilicrura*) severely damaged new strawberry plantings in northeastern Arkansas. CORN EARWORM infestations on strawberries were present but very light.

Truck Crop Insects: VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) attacked various garden and truck plantings in local areas over the State. Watermelons, tomatoes and crucifers were among the plants attacked. SQUASH BUG (*Anasa tristis*) caused partial to complete loss of melon plantings in the northwestern area. STRIPED CUCUMBER BEETLE (*Acalymma vittata*) infestations were likewise heavy in this same area. SEED-CORN MAGGOT infestations damaged tomato and bean plantings in the upper Arkansas River Valley.

Cotton Insects: BOLLWORMS (*Heliothis zea* and *H. virescens*) caused damage earlier than usual in a few counties. Control was necessary in local areas before treatments were needed for boll weevil. The unusually early economic infestations in local areas probably resulted from insufficient numbers of parasites and predators rather than from heavy flights of adults. Other than these early summer infestations, bollworm did not build up in numbers comparable to 1954 and 1955 even though infestations were much more general than in 1955 (see table 2). THRIPS infestations caused light damage with the greatest numbers occurring in the southeastern counties. COTTON APHID (*Aphis gossypii*) infestations were of no particular concern during 1956. Some local and late summer infestations occurred, but few required treatment. The CABBAGE LOOPER(*Trichoplusia ni*) caused extensive ragging of foliage in many cotton fields over the State. BEET ARMYWORM appeared in southeastern Arkansas but in non-economic numbers. During early summer STALK BORER (*Papaipema nebris*) and GARDEN WEBWORM infestations caused some damage. COTTON FLEAHOPPER (*Psallus seriatus*) infestations were lighter than usual in 1956. A few fields were reported infested in northeastern Arkansas, but damage was slight. COTTON LEAFWORM (*Alabama argillacea*) appeared in very low numbers in the southwestern counties during late summer. Early season BOLL WEEVIL (*Anthonomus grandis*) infestations in 1956 reflected the heavy infestations of 1955. A relative mild winter favored a winter survival rate five times that of 1954-1955. Overwintered adults appeared in heavy numbers in many fields. Infestations were heaviest in the southwestern, southeastern, and central counties and along Crowleys' Ridge. Some fields along the western edge of the delta were also heavily infested by overwintered weevils. Moisture conditions in early summer favored development of boll weevil infestations. By mid-July, a repetition of the high infestations of 1955 appeared to be imminent. Rainfall was light in the latter half of July and this, coupled with the high temperatures and hot, dry winds of early August, depressed the buildup of the second generation. Infestation counts in late August were considerably below those of 1955 even though "cut-out" reduced the number of squares available to boll weevils. A comparison of weekly average infestations in 1955 and 1956 based on percentage of punctured squares is given in table 1. This comparison is a summary of reports from scouts working in 17 counties. Rainfall amount is given as an average from 15 stations located in the cotton area. A comparison of the percentage of fields infested during 1955 and 1956 by boll weevil and bollworms given in table 2.

Table 1. Boll weevil infestations based on percent punctured squares in field distributed over 17 cotton producing counties in Arkansas.

	June			July					August				Sept.	
	12	19	26	3	10	17	24	31	7	14	21	28	4	11
1956														
Infest.	0.24	5.1	6.9	7.1	7.1	9.2	12.4	17.2	20.9	26.8	29.4	26.8	25.5	26.8
Precpt.	0.2	2.4	.39	.14	.98	.09	1.2	.6	.06	.35	.90	.03	1.51	0.0
1955														
Infest.	1.4	2.8	3.6	3.2	4.8	7.7	12.9	17.0	26.4	32.8	34.7	40.3	-	-
Precpt.	.79	1.17	.42	.53	.67	1.24	.66	.23	.26	1.49	.11	.49	-	-

Table 2. Percentage of cotton fields infested with bollworm and boll weevil in 17 cotton growing counties of Arkansas in 1955 and 1956.

	June			July					August			
	12	19	26	3	10	17	24	31	7	14	21	28
						Boll Weevil						
1956	28	30	51	70	68	82	85	86	92	88	94	89
1955	-	15	21	40	58	55	72	83	90	98	97	99.7
							Bollworm					
1956	48	23	19	31	40	46	58	62	61	57	61	63
1955	-	17	17	20	13	12	27	36	47	45	57	68

Stored Grain Insects: Infestations of stored grain pests in binned grain followed much the same pattern as in previous years. The SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) continues to be the dominant species. Populations of LESSER GRAIN BORER (*Rhyzopertha dominica*) increased while RICE WEEVIL (*Sitophilus oryzae*)and FLOUR BEETLES (*Tribolium* spp.) remained about normal. Field infestations in corn by the ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) and RICE WEEVIL increased sharply with up to 30 percent of the ears infested in some instances.

Forest, Shade and Ornamental Insects: BARK BEETLES (*Ips* spp.) infestations remained fairly constant in most of the State except in the western two tiers of counties. Insufficient moisture in this area resulted in intensified beetle activity in dying and decadent trees. BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) attacks increased over 1955 and 1954 and control measures were used in some areas. A PINE SAWFLY (*Neodiprion taedae linearis*) infestation increased in range and intensity in the Bradley-Calhoun and Dallas County area. Approximately 400 acres received treatment for control of the larvae. Two species of APHIDS (*Cinara watsoni* and *Essigella pini*) developed in great numbers on shortleaf pine in Johnson, Scott, and Logan County forests. NANTUCKET PINE MOTH (*Rhyacionia frustrana*) , PINE WEEVILS (*Hylobius pales*, and *Pachylobius picivorus*) caused damage locally to young plantings. MIMOSA WEBWORM (*Homadaula albizziae*) infestations caused extensive defoliation of mimosa trees over all but the northwestern counties. ELM LEAF BEETLE (*Galerucella xanthomelaena*) heavily damaged trees over much of the State and appeared in the extreme northwestern counties in economic numbers. It does not commonly appear in these counties. BAGWORM (*Thyridopteryx ephemeraeformis*) infestations caused light to heavy defoliation in local areas over the State.

Evergreens, sycamore, black locust, ash, hackberry, were among the trees attacked. FALL WEBWORM (Hyphantria cunea) colonies were more numerous than in 1955.

Outlook for 1957: Trash sampling indicates a lower number of BOLL WEEVILS in hibernation than in 1955-56, but greater than 1954-55. GRASSHOPPERS were more numerous in 1956 than in 1955 and weather in late summer and fall was very favorable to egg deposition. With increased egg deposits, and additional acreage going into grass and soil building crops under the Soil Bank Program, grasshopper and other forage crop pests may increase. The number of CHINCH BUGS in winter quarters is larger than usual and increased numbers in 1957 can be expected. EUROPEAN CORN BORER infestations may likewise increase in range and intensity. The prevalence of other insects pests, such as pea aphid, cutworm, armyworms, spotted alfalfa aphid, will be influenced to a great extent by seasonal weather conditions.

SUMMARY OF FOREST INSECT CONDITIONS - 1956

MAINE

Reported by R.W. Nash

The first ten species below are the most important in order of importance in 1956. SPRUCE BUDWORM (Choristoneura fumiferana) - Extensive moth flights into the State in 1955 resulted in general increase over the eastern half of the northern area in 1956. Populations will be checked more thoroughly in 1957, upon which to base predictions for 1958; at which time spraying may become necessary. Large larval and egg parasitism was greater than in 1955. Parasites of other stages were about the same. Egg masses were more numerous with more eggs per mass than in 1955. Higher populations were limited to a rather small area. However, a general infestation occurs over a large area which is of more concern, due to its involving more susceptible stands. PINE LEAF APHID (Pineus pinifoliae) - Severe damage occurred in the spring of 1956, due to continuance of infestations which migrated to pine from spruce in 1955. Heaviest damage was in eastern area. Some stands have as much as 10 percent mortality of intermediate and suppressed trees within the height ranges of 5 to 25 feet. Open growing and dominant trees in these heights recovered well through the putting out of adventitious shoots. Noticeable injury also abundant in western Maine but no mortality occurred. More extensive mortality is expected from cumulative effects of the injury, providing infestations in 1957 are as high as previous years. SADDLED PROMINENT (Heterocampa guttivitta) - Heavy infestations occurred over some 5,000 acres of northern hardwoods, west and southwest of Millinocket. There were 20,000 additional acres of lighter infestations. Defoliation occurs late in the growing season. Accompanying species were the green-striped mapleworm, pink-striped oakworm, red-humped caterpillar, American vagabond moth, and maple spanworm. Controls may be necessary in 1958. FALL CANKERWORM (Alsophila pometaria) stripping occurred in coastal areas predominately of oak over some 1500 acres. Egg masses indicate continuance of the severe infestations in 1957. Control measures are planned. TWIG PRUNER (Elaphidion villosum) was extensively abundant wherever oak occurred. No noticeable over-all injury to trees was experienced. ELM LEAF BEETLE (Galerucella xanthomelaena) increased in abundance in many areas to completely brown foliage. BEECH SCALE (Cryptococcus fagi) and the accompanying nectria fungus continued of prime importance in beech stands. BIRCH LEAF MINER (Fenusa pusilla) caused severe browing of gray birch over most of the State. White or paper birch is attacked but little. PALES WEEVIL (Hylobius pales) continued to be of high importance in killing pine reproduction wherever recent cuttings, blowdowns, or fire-scorched trees occurred. BALSAM WOOLLY APHID (Chermes piceae) was found as far north as Patten in northern Penobscot County. Lower infestations of 1954 and 1955 show an increase in 1956. Important, but unspectacular, mortality is occurring over the southern half of the State. BLACK-HEADED BUDWORM (Acleris variana) showed a general rise on fir over the northern third of the State. PINE BARK APHID (Pineus strobi) and WHITE-PINE APHID (Cinara strobi) were both exceedingly abundant on white pine. The latter caused noticeable stunting of pine twig and foliage growth. Unusual and exceedingly high populations of various APHIDS occurred on numerous trees during 1956, particularly on elm and maple, in addition to pine. Honeydew and the accompanying sooty mold were very abundant and sanding of roads was reported necessary in one area due to its presence. WASPS and YELLOW JACKETS were exceedingly numerous. GYPSY MOTH (Porthetria dispar) populations were generally low. Only 150 acres were sprayed. Aerial observation showed defoliation only in some 8,000 acres. Recent surveys of these areas indicate the need of little, if any, spraying in 1957. EASTERN LARCH BEETLE (Dendroctonus simplex) - Localized killing of larch occurred around the immediate vicinity of blowdown areas. Further continuance of injury is not indicated. PSOCIDS were unusually abundant on various trees and caused many complaints. Great clouds of MIDGES occurred in Kennebec County adjacent to rivers or lakes during July. Unusually prevalent this past year were polyphemus moth, luna moth and sphinx moth.

SUMMARY OF INSECT CONDITIONS - 1956

ALASKA

Reported by R. H. Washburn

Small Fruit Insects: APHIDS and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) on strawberries in Matanuska Valley.

Vegetable Insects: CUTWORM damage at lowest level since 1950. A LEAF MINER (Pegomya sp.) troublesome in beets and chard on Kenai peninsula in late July. TURNIP MAGGOT (Hylemya floralis) was destructive to crucifers in all areas. ONION MAGGOT (Hylemya antiqua) damaged green onions in one area of Matanuska Valley. In southeast Alaska SLUGS were the usual nuisance.

Greenhouse Insects: APPLE GRAIN APHID (Rhopalosiphum fitchii) , CLOVER MITE (Bryobia praetiosa) and A WHITEFLY were the most troublesome.

Livestock Insects: MOSQUITOES (Culiseta sp. and Aedes sp.) were annoying in late spring. CATTLE LICE caused trouble in calves over most of Alaska.

Miscellaneous Insects: MEADOW SPITTLEBUG (Philaenus leucophthalmus) was troublesome in strawberries, grass, raspberries and other crops in southeast Alaska. APHIDS and LEAFHOPPERS caused virus diseases of grasses and grains in Matanuska Valley for the first time. As this indicates, Alaska is still well off as far as insect problems are concerned compared with the States.

SUMMARY OF INSECT CONDITIONS - 1956

KANSAS

Reported by David L. Matthew

Highlights: Extreme drought conditions greatly overshadowed crop losses from insect activity. SPOTTED ALFALFA APHID successfully overwintered in southeastern counties with subsequent $8,500,000 statewide loss. A joint Federal-rancher grasshopper control program gave excellent control on 111,000 acres of rangeland in south central counties. PALE WESTERN CUTWORM caused extensive damage to some western wheat fields. Heavy PEA APHID infestations caused severe damage to first cutting of alfalfa in many southeast and east central fields. VETCH BRUCHID was recorded for first time in Pottawatomie and Labette Counties.

Cereal and Forage Insects: SPOTTED ALFALFA APHID losses were est. at $8,500,000 three times that of both 1954 and 1955. This figure does not include loss of seedling stands but does include some drought damage. Active infestations were found in early March in southeastern counties and destructive populations that developed rapidly indicated successful overwintering in that area. Severe damage began about Apr. 1 at which time counts varied to some highs of 3,000 per sweep. First cutting stands were greatly reduced and some stands lost. By mid-May, non-economic to light infestations covered the southern half of the State and by early fall, destructive populations began appearing in localized areas throughout the State. Fall-seeded stands were greatly thinned and in some fields completely destroyed. Aphids were still found in many eastern area alfalfa fields in December. GRASSHOPPERS (*Melanoplus* spp.) began appearing in mid-April in southeastern counties and populations developed generally throughout the State as predicted from previous surveys. Range species, primarily *Aulocara elliotti*, *Phlibostroma quadrimaculatum*, and *Ageneotettix deorum* were more abundant than expected in some southwestern areas. Approximately 111,000 acres of rangeland were sprayed in Comanche, Kiowa and Barber Counties by a joint Federal-rancher control program. Counts of 30 to 60 per square yard were reduced to near zero levels. Statewide losses from grasshoppers were an estimated $4,500,000, while over 2,100,000 acres were sprayed and baited with a saving of over $6,500,000. CHINCH BUG (*Blissus leucopterus*) continued as predicted at near outbreak levels in areas of the eastern third of the State. Some 600,000 acres were directly affected. Greatest crop losses resulted from reduced stands and decreased yields of corn and grain sorghums. Heaviest populations were found in central and southeastern counties where destructive feeding activity continued throughout the summer. Insecticides gave varying degrees of control and were successful only where properly applied. Over 437,000 acres were protected at a saving of an estimated $1,300,000. FALSE WIREWORMS (*Eleodes* spp.) occurred generally throughout central and western counties although fewer beetles were observed along roadsides than during 1955. Wheat plants in localized areas of a few fields were destroyed by larval feeding. Economic control was obtained by planting treated seed in infested areas. ARMYWORM (*Pseudaletia unipuncta*) was lower than 1954 and 1955 and little crop loss resulted. Light trap catches remained low throughout the season. HESSIAN FLY (*Phytophaga destructor*) continued at non-economic levels. ARMY CUTWORM (*Chorizagrotis auxiliaris*) feeding began by March 1 in wheat, barley, and alfalfa in southern counties and populations developed progressively northward across the State until the last of April. Crop losses were about one-tenth of those recorded for 1955. Destructive infestations of PALE WESTERN CUTWORM (*Agrotis orthogonia*) were in part responsible for extensive damage to wheat in the western tier of counties along the Colorado border Counts ranged from 0 to 15 larvae per linear foot of drill row and averaged 3 to 6 per foot in many areas. The combined affects of drought and blowing greatly overshadowed yield loss from insect activity. In mid-September, hundreds of moths were taken in black light traps indicating possible heavy infestations in 1957. BROWN WHEAT MITE (*Petrobia latens*) caused apparent leaf injury to wheat and barley in southern, central, and western counties. Counts ranged from 20 to over 500 mites per linear foot and distribution extended to include Chautauqua County, southeast area. Spraying for control showed little appreciable increase in yield. Light infestations of WINTER GRAIN MITE (*Penthaleus major*) were found in localized areas of southeastern counties. Destructive GREENBUG (*Toxoptera graminum*) infestations occurred during March and April in localized areas in southeastern counties. Although no general outbreak prevailed, economic losses to wheat and barley production were quite severe where no control measures were applied. Non-economic to heavy infestations occurred over some 43,000 acres; however, total loss of crop was limited to about 12 percent of this acreage. Light to moderate infestations of CLOVER LEAF WEEVIL (*Hypera punctata*) caused plant injury to red clover and alfalfa in localized areas of northeast and east central counties. Counts ranged from 1 to 12 larvae per square foot. VETCH BRUCHID (*Bruchus brachialis*) was found for the first time in Kansas in Labette County, southeast, and Pottawatomie County, northeast.

Moderate to heavy PEA APHID (*Macrosiphum pisi*) damage occurred to first-growth alfalfa in east central and southeast counties. Early control was erratic as temperatures were low and some applications were too light. Although less acreage was affected than during 1955, infestations were more severe where not controlled. FALL ARMYWORM (*Laphygma frugiperda*) were rather general over the eastern half of the State. Shank feeding was common, especially in irrigated fields. Some fields of corn in north central areas had an ear drop of nearly 30 percent, elsewhere lodged ears averaged from 7 to 15 percent. Lodged ears were not entirely lost, but did cause added picking expense. Injurious CORN LEAF APHID (*Rhopalosiphum maidis*) infestations, although not as severe as during 1955, occurred in many localized areas throughout the State and particularly in central and western counties wherever milo was grown. In a few areas, the heavier populations often caused poor development of heads and subsequent loss from poorly filled kernels. CORN EARWORM (*Heliothis zea*) occurred generally wherever corn and sorghum were grown. Many fields in northeast areas had 95 percent ear-feeding damage with a loss that ranged from 4 to 12 percent of the kernels destroyed. Forty percent of the sorghum and milo fields in the eastern half of the State had infestations in 50 to 90 percent of the heads with a subsequent loss of from 15 to 20 percent. Whorl feeding in corn in central Kansas was common by mid-June. Moth flights were very heavy in late summer and until fall freezes. EUROPEAN CORN BORER (*Pyrausta nubilalis*) larval infestations were lower during early summer; however, the fall abundance survey showed a state average increase from 24 borers per 100 plants in 1955 to an average of 31 per 100 plants for 1956. District averages for 1956 were as follows: north central 2; northeast 69; and east central 22 borers per 100 plants. The loss figure will probably be less than for 1955 as fewer acres were harvested. SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) infestations were present in south central areas; however as much of the corn was cut early for silos harvest loss from girdled stalks was far below that of 1955. Very few infestations were found in central and northern areas, and wherever found averaged less than 1 percent.

Fruit Insects: CODLING MOTH (*Carpocapsa pomonella*) damage in 1956 was greater than in 1955 due in part to a light crop and hot weather. Although many apples were injured by first generation RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*), later broods caused little damage. STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) caused more damage than during the 1955 season. A SPIDER MITE (*Tetranychus* sp.) was well controlled in most Kansas orchards by sprays. Light APPLE CURCULIO (*Tachypterellus quadrigibbus*) damage was found in a few orchards in Doniphan County. This is the first appearance of this insect since the drought years of the 1930's. (Eshbaugh).

Forest, Ornamental and Shade Tree Insects: BAGWORM (*Thyridopteryx ephemeraeformis*) infestations continued to increase and were abundant throughout most central and eastern counties. Distribution of the SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) extended to include most counties of the eastern two-thirds of the State. Many of the thousands of drought-weakened elms throughout this area are heavily infested. Most soft maple trees in northeastern areas were partially defoliated by GREEN-STRIPED MAPLEWORM (*Anisota rubicunda*). EUROPEAN ELM SCALE (*Gossyparia spuria*) infestations now occur in twelve western counties with the addition of one new county, Decatur. Destructive populations of CEDAR SCALE (*Cryptaspidiotus shastae*) occur in localized areas on cedars generally throughout the State.

Insects Affecting Man and Animal: Moderate to heavy infestations of CATTLE GRUBS (*Hypoderma* spp.) were found during January and February. Fall counts showed a slight population decrease, and no grubs were found or reported on native cattle in north central Kansas until after October 15. Heaviest counts were on animals shipped in from outside the State. STABLE FLY (*Stomoxys calcitrans*) appeared in lower numbers than previously reported. The moderate to heavy populations of HORN FLY (*Siphona irritans*) that occurred in late spring were followed by lower numbers during summer months, and showed no general increase over 1955 counts.

HOUSE FLY (*Musca domestica*) began emergence in northern counties during late May and population levels showed no appreciable change over 1955. BLACK WIDOW SPIDER (*Latrodectus mactans*) were more numerous than either 1954 or 1955 and were reported from many areas. *Aedes vexans*, and other species of MOSQUITOES to a lesser extent, were responsible for curtailed recreational activities in northeast and north central Kansas during mid-summer.

Stored Grain Insects: In 1956, as in the two previous years, DERMESTIDS were abundant in farm and elevator grain storage. The dominant species was *Trogoderma glabrum*. INDIAN-MEAL MOTH populations in surface grain continued high as did LESSER GRAIN BORER (*Rhyzopertha dominica*) the latter being found in drier wheat. Few or no field damaged kernels were found at time of harvest as had occurred during 1955. GRANARY and RICE WEEVILS (*Sitophilus granarius* and *S. oryza*) were again plentiful in southeastern areas of the State. KHAPRA BEETLE (*Trogoderma granarium*) has not been found in Kansas.

Light Traps: Four insect light traps were in operation throughout the growing season to help determine insect flights and migration patterns for possible prediction of insect outbreaks. Traps were located in Finney, Ellis, Riley, and Doniphan Counties. During the second week of August over 22,000 CARROT BEETLE (*Ligyrus gibbosus*) adults were taken during one night.

Cooperators: The following entomologists made contributions at various times during the reporting season that aided in this report: R.E. Beer, J.E. Brady, C.C. Burkhardt, L.A. Calkins, L.J. DePew, E.L. Eshbaugh, D.E. Gates, T.L. Harvey, H. Knutson, F.A. Lawson, E.T. Jones, P.H. Marvin, R.H. Painter, W.H. Somsen, and D.A. Wilbur.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BEET WEEVIL (Cleonus punctiventris Germ.)

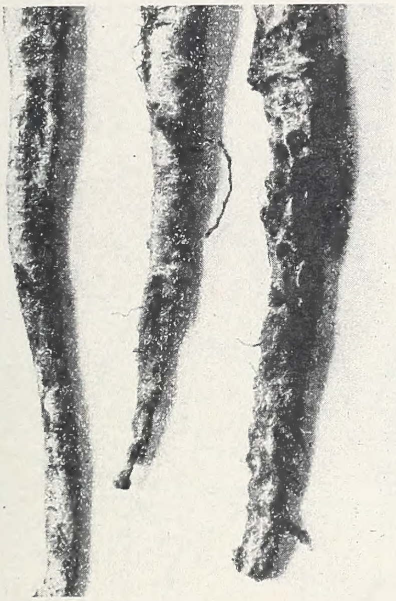
Economic Importance: This weevil is known as a serious pest of sugar beets in central Europe as well as in other parts of its range on occasion. Although beets are attacked in all stages of growth, principally the seedlings suffer the greatest damage. Large acreages of young beets have been destroyed in a very short time and during outbreak periods it is frequently necessary to replant entire fields. For example, in 1928 at Kiev, Russia, 71 to 92 percent of the beets had to be resown.

Distribution: Austria, Bulgaria, Czechslovakia, France, Germany, Hungary, Poland, Rumania, Russia, Turkey, and Yugoslavia.

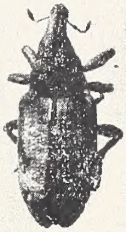
Hosts: Although primarily a pest of beets, the weevil has been reported from potatoes, corn, spinach, tobacco, oats, alfalfa, Russianthistle, lambsquarter, saltbush, prostrate knotweed and redroot amaranthus.

Life History: The biology as worked out in Rumania is as follows: Adults emerge from hibernation during the latter half of March and feed on plant foliage. Mating occurs from early May to mid-June. Females deposit about 70 to 80 eggs to a depth of one inch in the soil in vicinity of beet plants from late May to late June. After oviposition, the females die, but males continue to feed. Larvae hatch near the end of July, feed on roots of beets and become full-grown at the end of August. Pupation takes place during the autumn.

Description: Adult 10-13 mm. long, somewhat attenuate, vestiture of gray and brown scales. Scales three-clefted. Elytra with a rather vague submedian transverse band of dark scales. Punctures of the underside each with a long white hair. (Prepared by Plant Pest Survey Section in cooperation with other ARS agencies). CEIR 7(8) 2-22-57.



Beet roots damaged by C. punctiventris

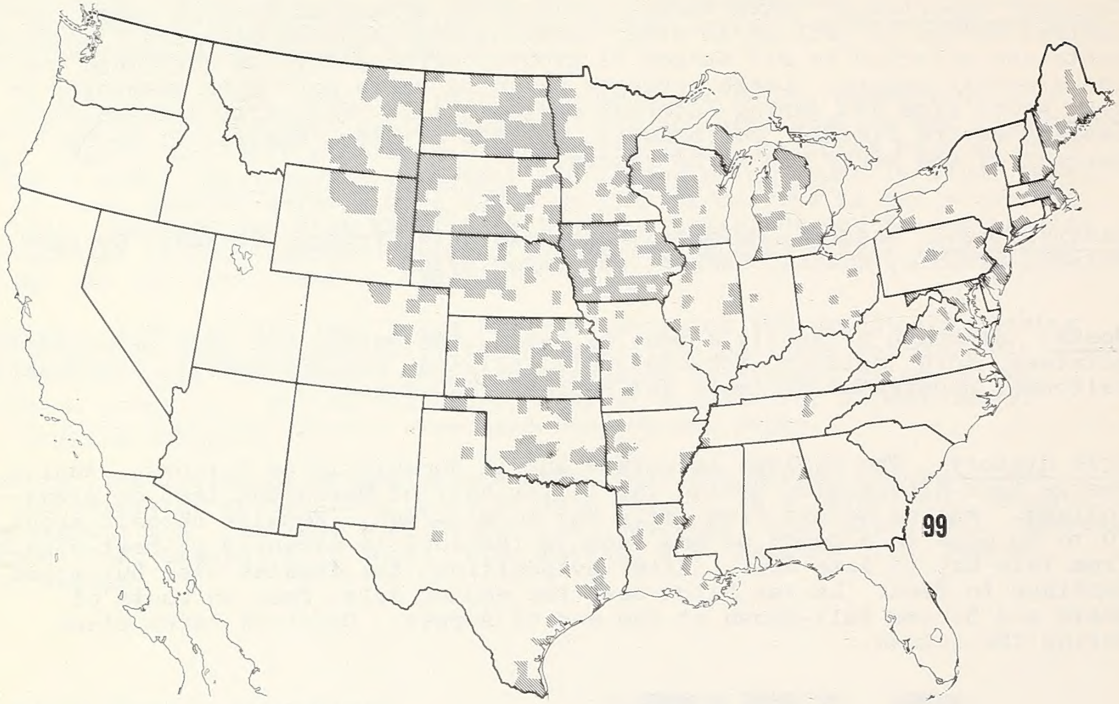


Adult greatly enlarged

(After Miestinger)

DISTRIBUTION OF RANGE GRASSHOPPERS

Orphulella speciosa (Scudder)



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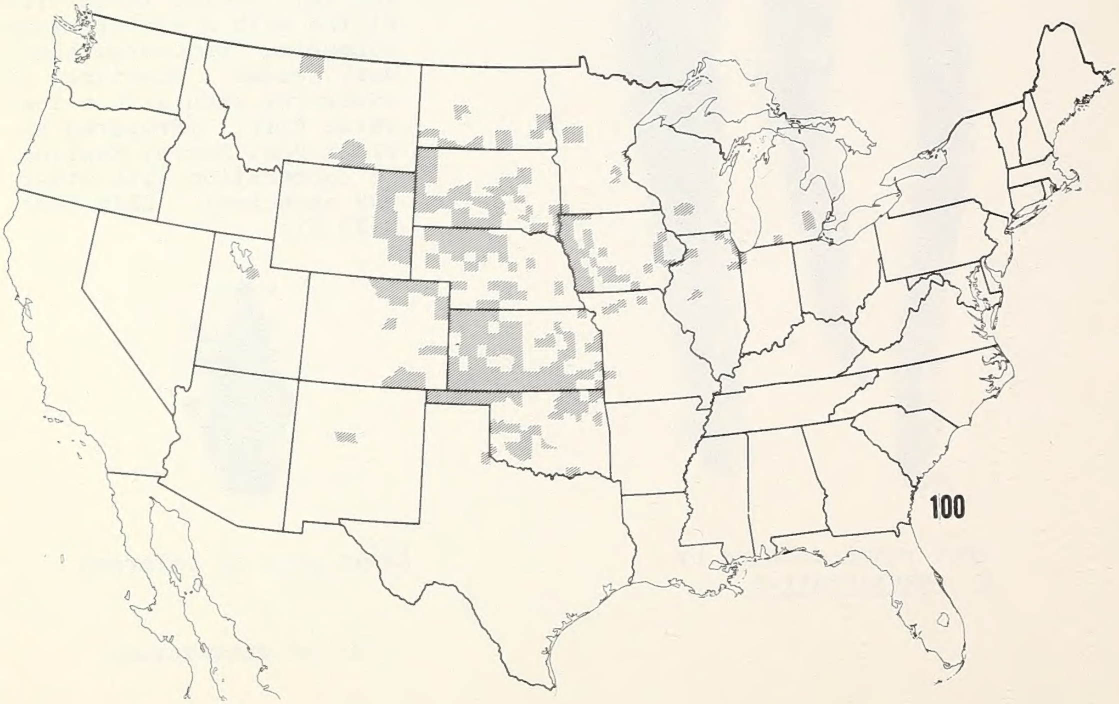
Pardalophora haldemanii (Scudder)



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